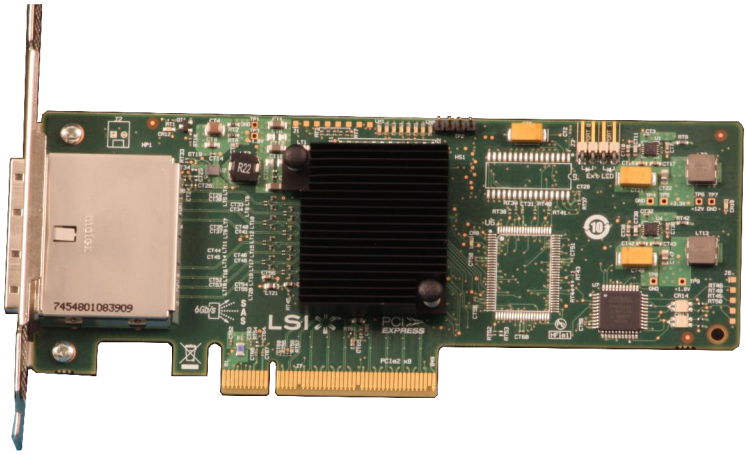
A3DRV-HBA / A3DRV-WARP

SAS Host Bus Adapter Driver



User Manual

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This document describes Astek's SAS Host Bus Adapter Card and Warp Card Driver, and will remain the official reference source for all revisions/releases of this product until rescinded by an update.

To receive product literature, visit us at http://www.astekcorp.com.

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Revision	Date	Auth	Pages	Notes
A	08/11/11	TAB/ DTC	All	Initial Draft
B	10/02/12	TFV	All	Updated OS X versions supported, updated list of supported hardware, updated license/activation entry process

Table of Contents

1 Introduction....4
Features....4
2 Supported Platforms....5
Software....5
Hardware....5
3 Software Installation....6
4 Troubleshooting....12
Apple System Profiler....12
For Astek Cards: Determining the World Wide ID (WWID)....14
For LSI Cards: Determining the World Wide ID (WWID)....16
5 Appendix: Hardware Installation....17
6 Support....21

1 Introduction

The Astek A3DRV device driver supports a number of PCI-Express (PCIe) 6 Gigabit per second (Gbps) Serial Attached SCSI (SAS) Host Bus Adapters (HBA) from LSI Corp., Astek, and Astek's OEM partners. The driver provides the necessary software for Apple Macintosh OS X (10.6 through 10.8) to communicate with the controller card, and provides some system utilities to assist the operator in managing their SAS topology.

For information about the hardware products see:

Astek Corporation for the A3806-PCI and A3807-PCI card products.

LSI Corporation for the LSISAS, SLP, WLP, BLP card products.

Features

- Full support for both 32-bit kernel mode (10.6) and 64-bit kernel mode (10.6,10.7, 10.8)
- Supports Serial Attached SCSI controller cards, including full support for SATA media
- In licensed mode, the driver supports up to 255 target devices
- Supports direct-attach and connection through SAS Bus Expanders
- With Lion OS X 10.7 and later, supports Asymmetric Logical Unit Access (ALUA)
- Supports any number of PCIe cards, including mixing HBAs and PCIe SSD cards

2 Supported Platforms

Software

This driver offers support for the following operating systems:

OS Support	Versions	Processor Type
Apple Macintosh OS X	10.6-10.8	x86 (32-bit and 64-bit)

Hardware

The driver software is known to be compatible with the following controller cards:

Vendor	Card
Astek	A3806-PCIe A3807-PCIe A31606-PCIe
LSI	LSISAS9200-8e (LSISAS2008 based 8-port Gen2 SAS HBA) LSISAS9201-16e (LSISAS2116 based 16-port Gen2 SAS HBA) LSISAS9202-16e (LSISAS2008 based 16-port Gen2 SAS HBA) LSISAS9205-8e (LSISAS2308 based 8-port Gen2 SAS HBA) LSISAS9207-8e (LSISAS2308 based 8-port Gen2 SAS HBA w/ PCIe 3.0) LSISSS6200-300 (LSI WarpDrive Gen2 SAS HBA) LSI WLP4-200 (PCIe 2.0 SSD) LSI WLP4-400 (PCIe 2.0 SSD) LSI BLP4-400 (PCIe 2.0 SSD) LSI BLP4-800 (PCIe 2.0 SSD) LSI BLP4-1600 (PCIe 2.0 SSD)

3 Software Installation

CAUTION	When installing any system software, be sure you have a current backup of your system, while issues caused by device drivers are rare, they can result in a system that is difficult to recover. Always keep your Apple installation media for the system on-hand in the unlikely event that you have to restore the system to an earlier state. Instructions on manually removing the PCIe device driver from a system can be obtained from your sales and support representative. As this device driver supports disk controllers and will affect the volumes available to your system, you **SHOULD** ensure that all internal disks are either powered off, or unmounted by right clicking on their icons and selecting “Eject”.

CAUTION	If you are upgrading your driver from a prior version, you **MUST** ensure that all disks attached to the PCIe device are powered off or ejected. Otherwise the file systems on these disks may be corrupted by force-unmounting that occurs during driver installation. You will not need to reset the workstation, once installation is complete the system will begin discovering disks that are attached and powered on and will automatically mount them to the desktop if able.

Step 1. Open the provided Disk Image, (usually named AstekFusion2Driver_xxx.dmg).

Step 2. Run the installer package, “AstekFusion2 HBA Driver.pkg”.

Step 3. At the first and second screens, click to continue. See Illustration 1: First install screen.

Install Astek Fusion MPT2 Drivers
Welcome to the Astek Fusion MPT2 Drivers Installer
Introduction
Read Me
Destination Select
Installation Type
Installation
Summary
AstekFusion2 Driver for Apple Macintosh OS X
This device driver supports the following Astek Host Bus Adapter products:
A3806-PCIE-01 (LSISAS2008 based 8-port Gen2 SAS HBA)
A3807-PCIE-01 (LSISAS2308 based 8-port Gen2 SAS HBA)
A31606-PCIE-01 (LSISAS2116 based 16-port Gen2 SAS HBA)
The driver also supports several standard LSI board products including*:
LSISAS9200-8e (LSISAS2008 based 8-port Gen2 SAS HBA)
LSISAS9205-8e (LSISAS2308 based 8-port Gen2 SAS HBA)
LSISAS9201-16e (LSISAS2116 based 16-port Gen2 SAS HBA)
In addition to HBA products, this driver also supports cards from OEM partners, and certain PCIe SSD products with appropriate licensing. If you have questions about supported cards, versions required, or need licensing, please contact your channel and/or OEM vendor first, Astek does not offer free technical support for OEM products.
Go Back
Continue

Illustration 1: First install screen

Step 4. On the third screen you will be asked to accept the license terms for the driver. You must click “Accept” to install this device driver. For additional information on the license terms see your sales and support representative.

Step 5. On the fourth screen you will be asked to select the disk on which to install the driver. This must be the boot-disk for the workstation with which you will be using the PCIe card. This disk should be selected by default and indicated with the green arrow. Select the disk and click “Continue”.

Step 6. You will then be shown screen five with the size of the installation. Click “Install”. Make sure any attached disks are powered off or unmounted if you are upgrading.

Step 7. The final screen shows the summary and contact information for support. See Illustration 2: Installation Complete.

Install Astek Fusion MPT2 Drivers
The installation was completed successfully.
Introduction
Read Me
Destination Select
Installation Type
Installation
Summary
The device driver is now installed, you do not need to reboot the system. Your disks should show up in the Finder window in a few seconds.
NOTE: If you do not see any disks, or you have multiple disks connected but only a single disk appears in Finder, your are running in un-licensed "demo" mode. You must get a valid driver license file and have it installed on your system. To do so please use the AstekActivationRequest tool in your /Applications/Utilities folder to activate your card(s).
To remove the Astek driver, delete the AstekFusion2Adapter.kext extension from your /System/Library/Extensions folder, and the installed utilities (AstekUpdateActivation, AstekActivationRequest) from the /Applications/Utilities directory.
For OEM branded products, contact your OEM vendor.
For LSI branded standard PCIe card products, contact LSI for hardware support, contact Astek for installation and driver licensing.
For Astek branded products, licensing and all other support questions contact Astek Corporation at:
Go Back
Close

Illustration 2: Installation Complete

Step 8. If you are using a non-Astek provided HBA card, you must activate your license. If you have not already purchased a license, you can do so by going to our A3DRV-HBA Product page at our web storefront. If you choose not to purchase a license, you may use the “Demo” mode, which limits the number of target disks (media) that can be accessed.

Your Product Authorization Key (PAK) will have the following format:

B-AGOV-LXAA-W1DU-BUAA-AAPM

Once you have received your PAK, run the supplied helper utility “AstekFusion2 HBA Activation Request.app” Which will bring up the dialog in figure Illustration 3: Enter Your Authorization Key. Enter the PAK where prompted.

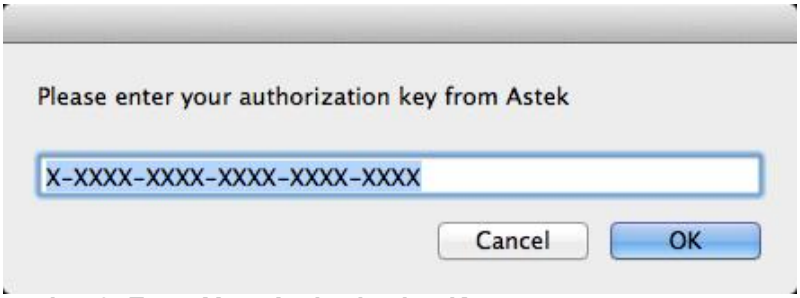


Illustration 3: Enter Your Authorization Key

Step 9. The utility will generate an email to Astek requesting the activation code (this is separate from the authorization key). See Illustration 4: Astek Activation Request.

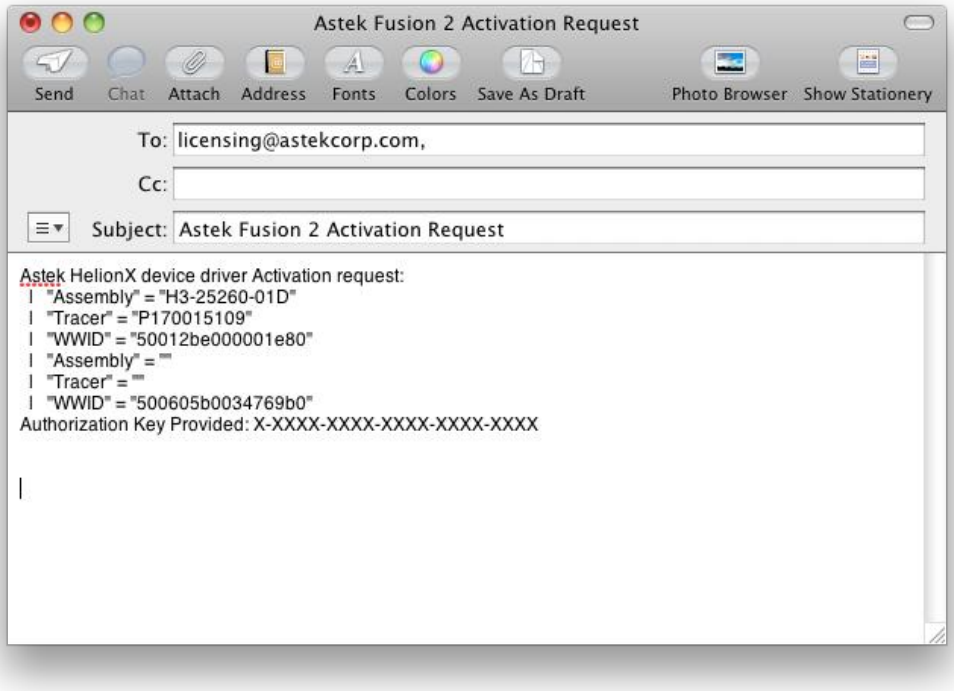


Illustration 4: Astek Activation Request

Step 10. If you provided a valid PAK license code, you will receive a PAC within one business day (Monday through Friday, 8am to 5pm Mountain Time, USA). If you have previously activated your card serial number with your PAK, you do not need to re-issue the activation request, simply use the PAC previously sent to you. If you would like to change your license to a new PCI card, you must contact your Astek Sales representative.

Step 11. When you have received your Product Activation Code (PAC), open the *AstekFusion2 HBA Update Activation.app* utility normally installed in /Applications/Utilities.

Step 12. As Prompted, Ensure that all Drives are unmounted before proceeding. See Illustration 5: Un-mount Hard Drives.

Before proceeding, please follow the steps below
1. You must safely unmount any media attached to the SAS controller by right-clicking or control-clicking on the disk and selecting "Eject"
2. Once the media has been un-mounted, disconnect the cables or power down any external disks and enclosures
3. Proceed with this installation
Cancel
OK

Illustration 5: Un-mount Hard Drives

Step 13. Enter your PAC from Astek on the screen. See Illustration 6: Activation Code Entry Screen.

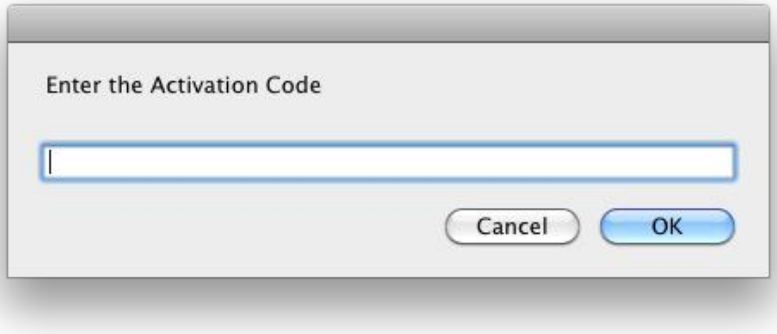


Illustration 6: Activation Code Entry Screen

Step 14. Done – no need to reset the workstation! The driver should be automatically reloaded. If there is any conflict with the loaded kernel extensions you may see an error message from the Activation Utility, in this case you will need to reboot your system.

4 Troubleshooting

Apple System Profiler

You can verify correct installation by opening the Apple System Profiler (available by clicking on the “About this Mac...” selection under the Apple icon menu in the upper left hand corner of your screen, then click the “More Info...” button). Under the PCI cards section you should see a card of type “SAS Controller”. If the card does not appear here, check to ensure that the card is properly seated in the PCI slot.

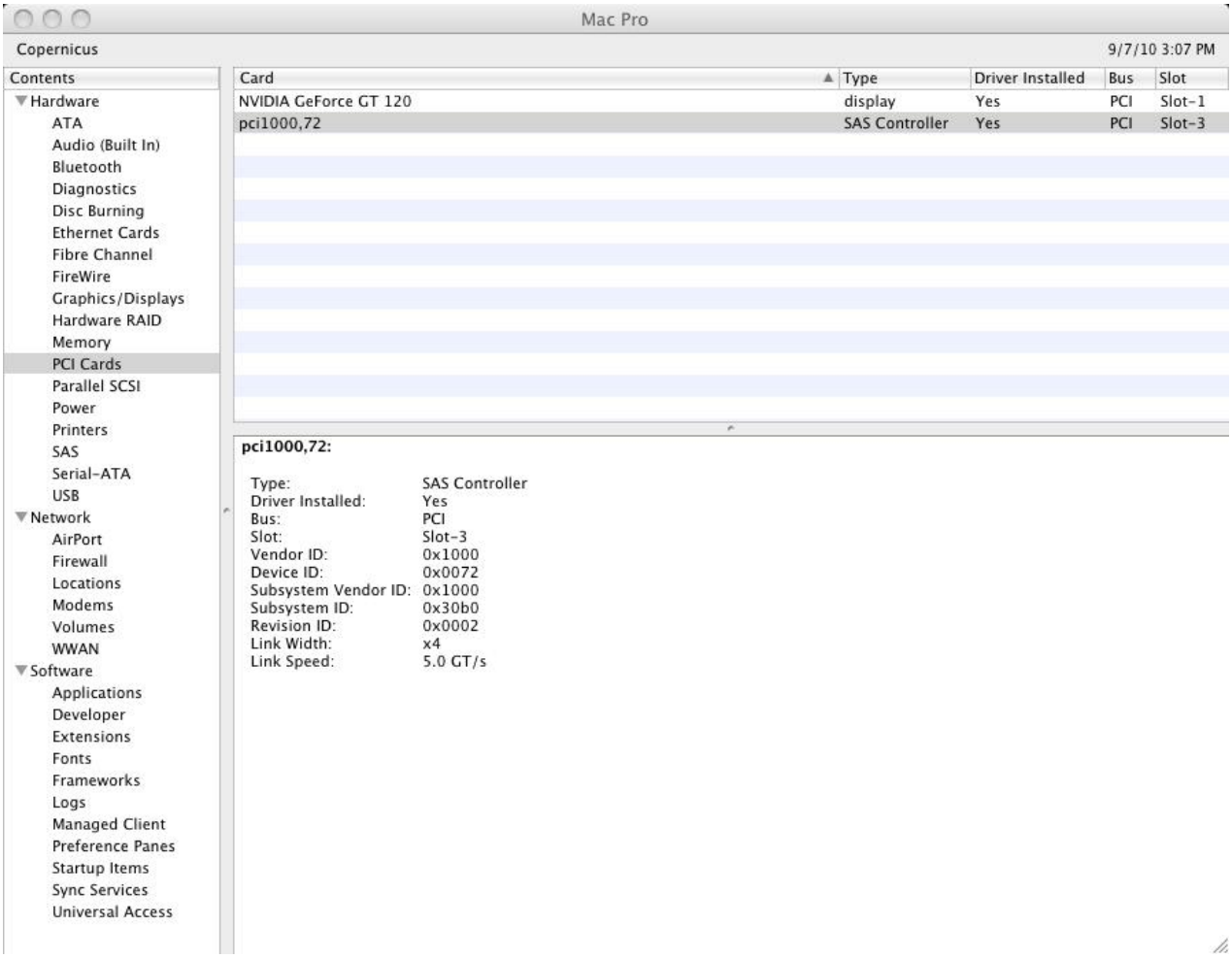


Illustration 7: Apple System Profiler Screen - PCI Card

In the SAS section, select the desired SAS Domain (example “24”). If the card appears as “unlicensed” in the product field, refer to steps 9-12 in the Software Installation section. See Illustration 8: Unlicensed Driver Software.

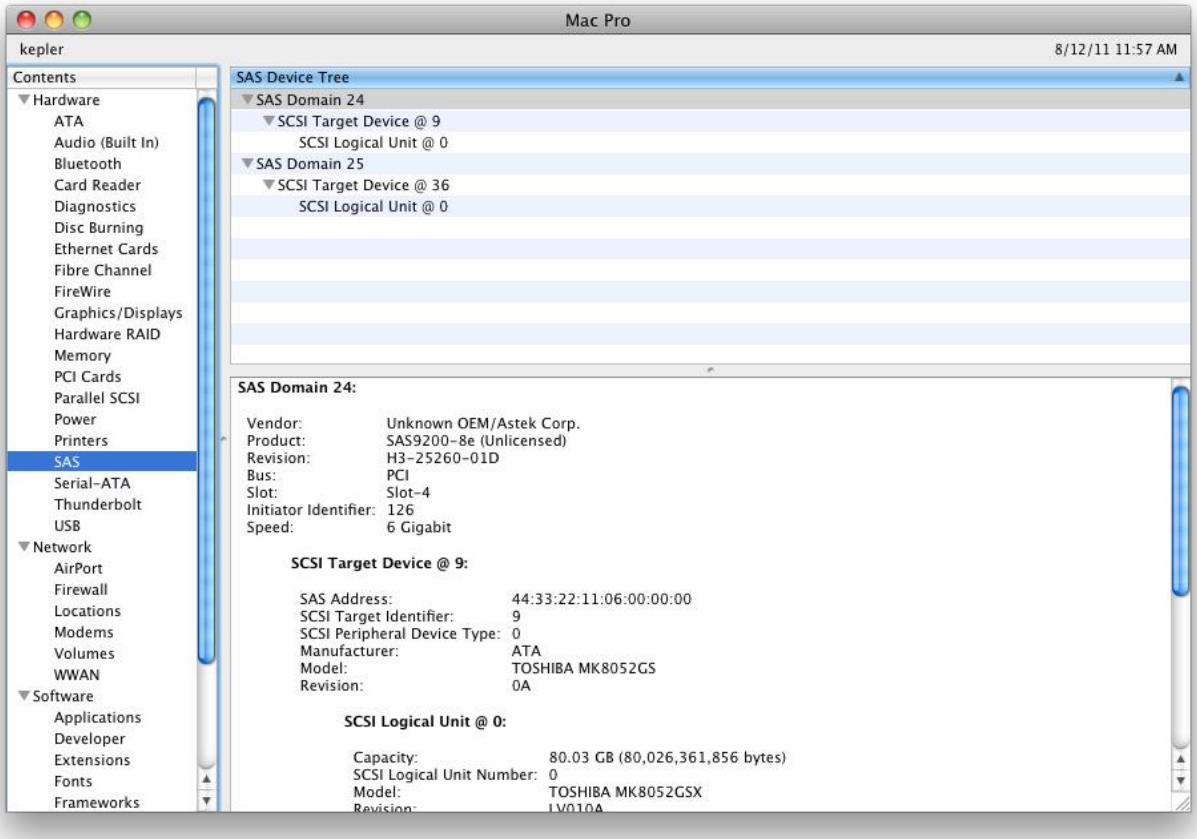


Illustration 8: Unlicensed Driver Software

For Astek Cards: Determining the World Wide ID (WWID)

Every Astek board product has a 16 character WWID. This information is required for support in the event that you require assistance with a hardware issue. Below is an example of WWID label affixed to an Astek PCIe board.

The WWID will look like 50012BE000001234.

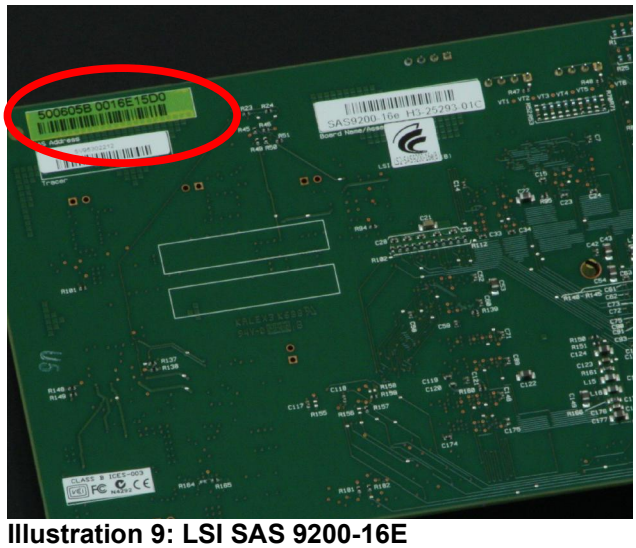
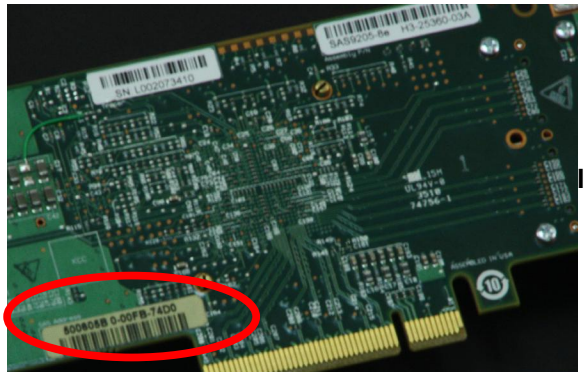


Illustration 9: LSI SAS 9200-16E

Illustration 10: LSI SLP-300



lustration 11: LSI SAS9205-8e

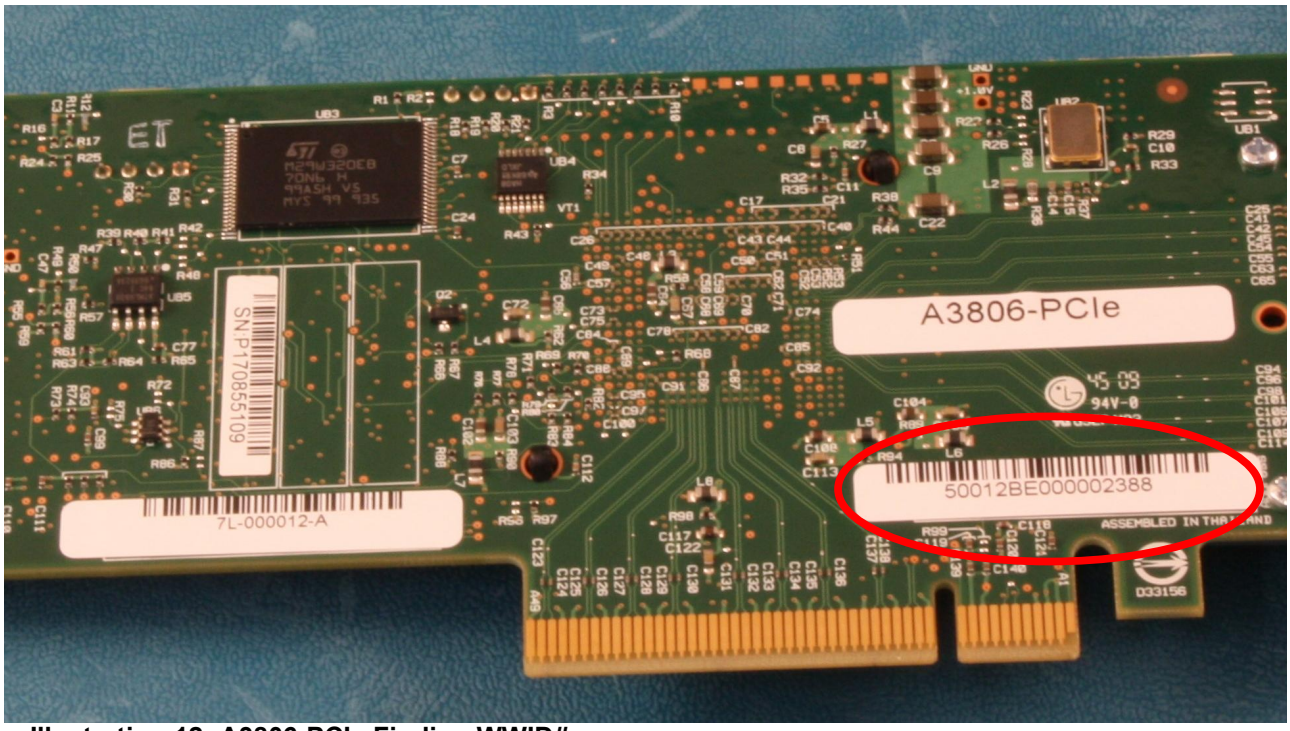


Illustration 12: A3806-PCIe Finding WWID#

For LSI Cards: Determining the World Wide ID (WWID)

Every LSI board product has a 16 character WWID. This information is required for support in the event that you require assistance with a hardware issue. Below are examples of WWID labels affixed to LSI PCIe boards.

The WWID will be of the format 50XXXXXX XXXXXXXX.

5 Appendix: Hardware Installation

Follow these steps to install the PCIe card.

CAUTION	Ground yourself before removing any electronic equipment or parts. ESD can damage your system and/or the PCIe card. Your warranty does not cover ESD induced damage to the host system or the PCI-e card and is your responsibility. If you are unsure as to proper ESD procedures, it is highly recommended to have the installation performed by a qualified technician.

Step 1. Remove the PCIe Controller card from the ESD packaging and check that it is not damaged.

Step 2. Ensure that the workstation is powered down.

Step 3. Remove the side cover of the system. See Illustration 13: Removing the workstation cover.

Illustration 13: Removing the workstation cover

Step 4. Remove the Add-In-Card (AIC) retaining device. See Illustration 14: Removing the AIC retaining device (fingers) and Illustration 15: Removing AIC retaining device (screwdriver), you may need a screw driver to remove the retaining screws if this has not been previously done.

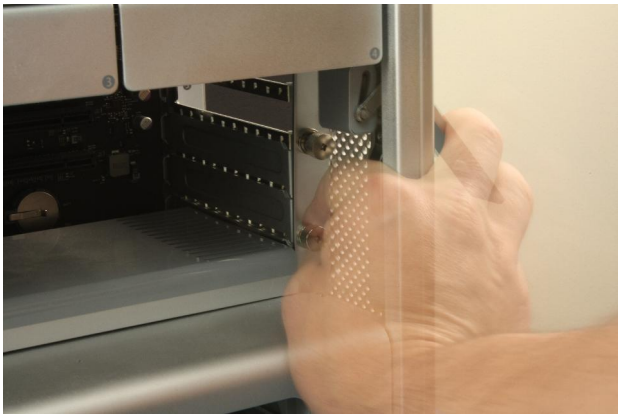


Illustration 14: Removing the AIC retaining device (fingers)

Illustration 15: Removing AIC retaining device (screwdriver)

Step 5. Remove the ESD shield from one of the unused PCIe slots.

Step 6. Insert the PCIe card into the open slot, ensure the card is firmly seated by pushing against the bracket until the bracket is fully seated against the chassis. See Illustration 16: Ensure PCIe card is fully seated against bracket.

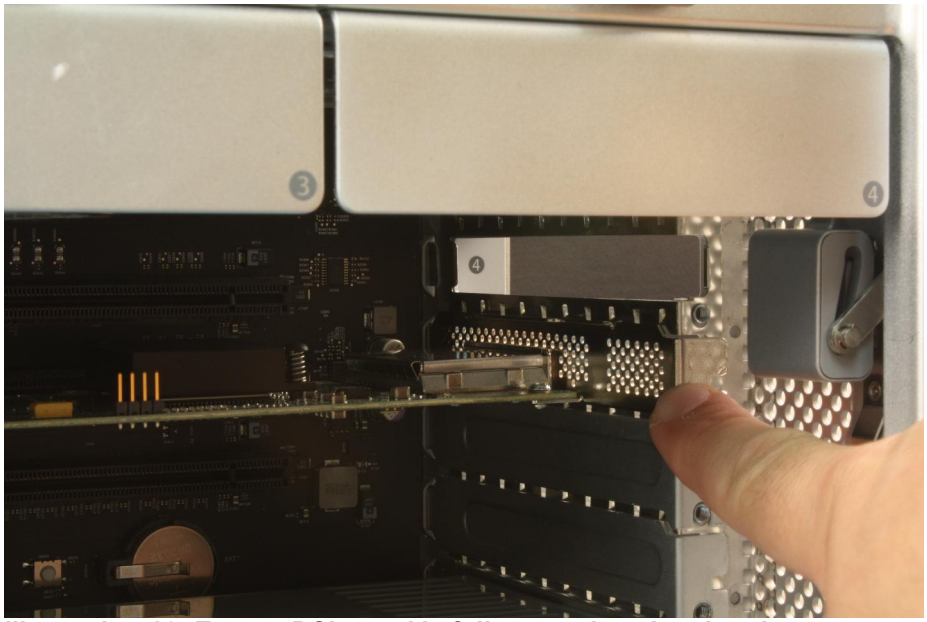


Illustration 16: Ensure PCIe card is fully seated against bracket

Step 7.

Step 8. Re-install the Add-In-Card retention device. See Illustration 17: Reinstall AIC retaining device. You should use a screwdriver for this if the installation is intended to be permanent to ensure it does not come loose if the workstation is moved.

Illustration 17: Reinstall AIC retaining device

Step 9. Replace the side cover of the workstation.

Step 10. Connect the external disk array or JBOD using an iPASS cable (in most cases supplied with your disk array). See Illustration 18: Connect iPASS cable and Illustration 19: Properly seated iPASS cable.

Illustration 18: Connect iPASS cable

Illustration 19: Properly seated iPASS cable

Step 11. Power up the workstation. Proceed to software installation (Section 3)

6 Support

For additional support, contact your OEM sales representative. If you are unable to contact the seller of your PCI-e card you may contact Astek Corporation for additional information.

Email: support@astekcorp.com.

Web: http://www.astekcorp.com/

By Phone: (719) 260-1625.